

Energy Efficiency Upgrades for Sanitation Facilities in Selawik, Alaska

DOE Workshop: Renewable Energy and Energy Efficiency for
Alaska Native Community Development

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ANTHC, DEHE Overview

Services Provided:

- Engineering
- Construction
- Project Management
- Environmental Health
- Regional Health Facilities
- Tribal Utility Support





Selawik Overview





Selawik Sanitation Facilities

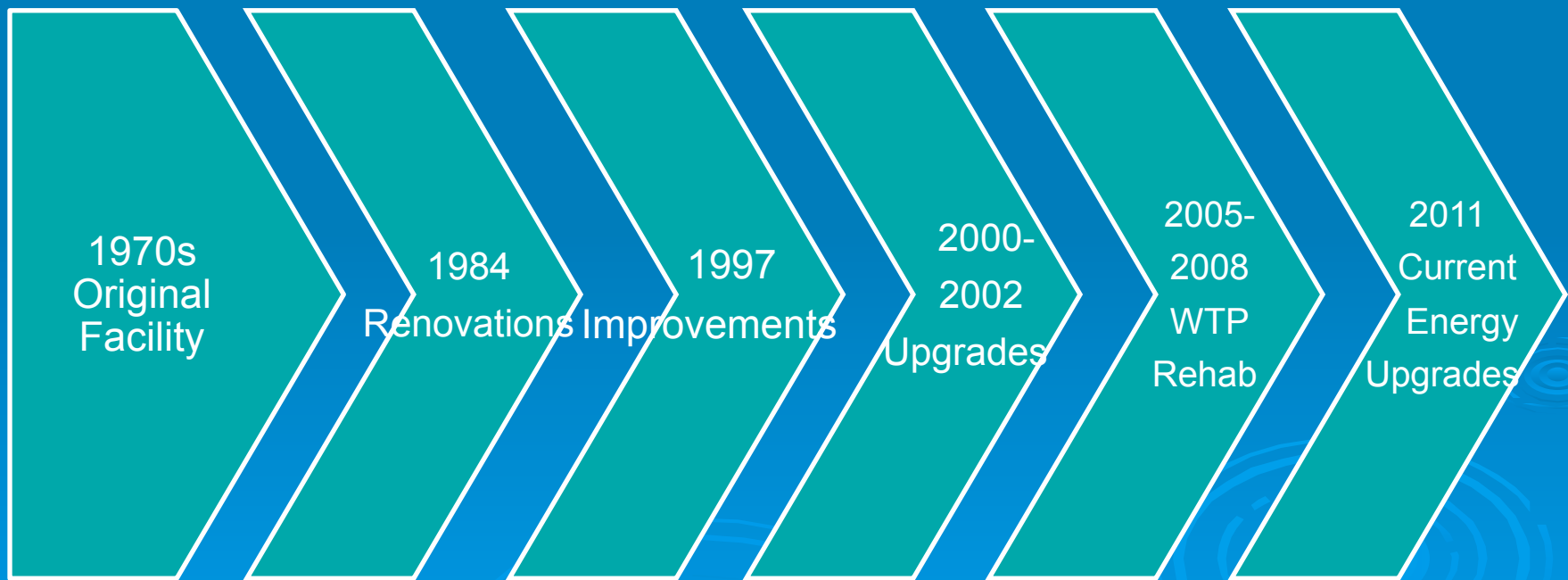
Above ground circulating water & vacuum sewer





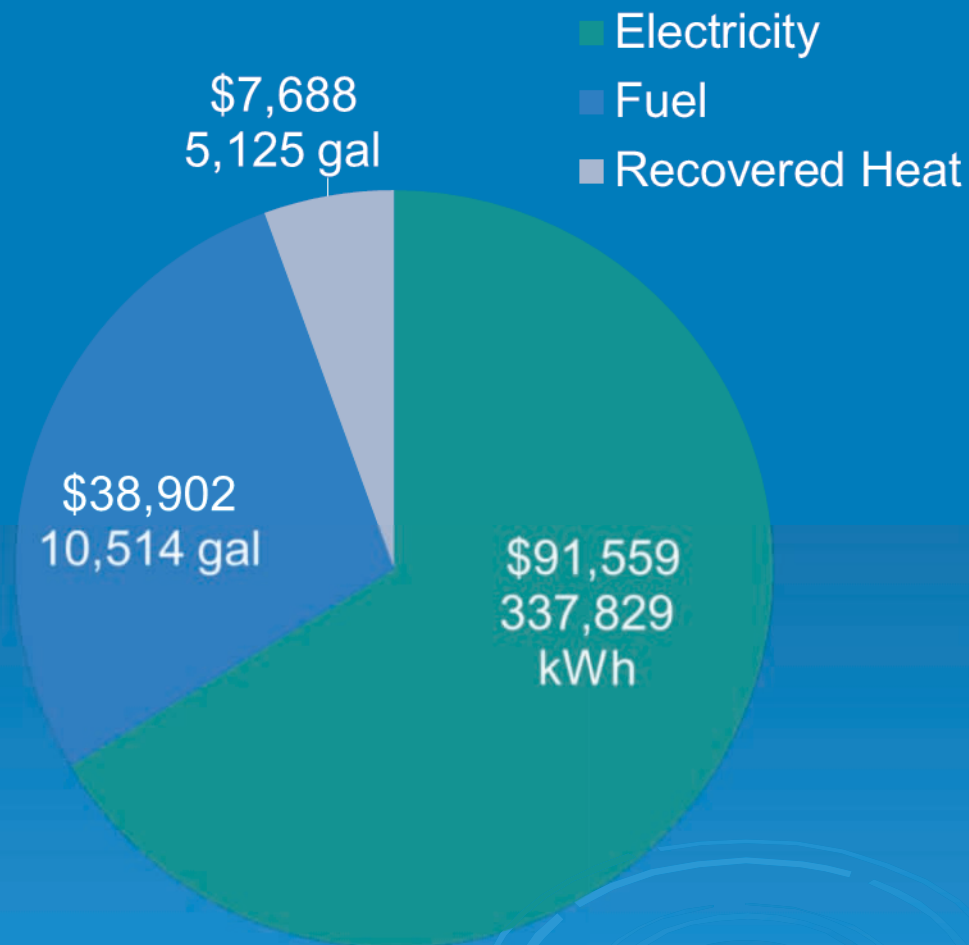
Selawik Sanitation Facilities

System Development Timeline





Selawik Energy Use & Costs





Challenges in Selawik

- Annual freeze-ups to mains and services
- Vacuum sewer system is expensive to operate
- Damage due to freeze/thaw cycle of permafrost





Project Objectives

Utility	Scope of Work
Water Treatment/Vacuum Sewer Plant (Interior)	<ol style="list-style-type: none">1. Modify heat recovery system2. Upgrade glycol heat-add system (sewer)3. Upgrade hydronic heat-add system (water)4. Replace interior lighting with LED lamps5. Re-commission vacuum sewer pumps
Vacuum Sewer Collection System (Exterior)	<ol style="list-style-type: none">1. Repair leaks in vacuum sewer mains & service lines2. Repair and re-insulate junction & arctic boxes3. Label heat trace breaker boxes



Additional Funding for Additional Scope of Work

Utility	Scope of Work
Water Treatment Plant	<ol style="list-style-type: none">1. Replace circulation pumps2. Replace single wall with double wall heat exchangers
Sewer & Water System	<ol style="list-style-type: none">1. Replace glycol heat-add lines in utilidors2. Re-level vacuum sewer utilidors3. Replace vertical bends & elbows in water loops
Individual Services	<ol style="list-style-type: none">1. Repair up to 100 damaged arctic boxes2. Replace up to 100 non-functioning water service circulation pumps



Phased Approach

Scope of Work	Year
<ol style="list-style-type: none">1. Upgrade glycol heat-add system in vacuum sewer plant2. Upgrade hydronic heat-add system in water treatment plant3. Re-commission vacuum sewer pumps4. Repair and re-insulate junction & arctic boxes5. Label heat trace breaker boxes6. Replace circulation pumps7. Replace glycol heat-add lines in utilidors (about 35% complete)8. Repair up to 100 damaged arctic boxes (30 completed)9. Replace up to 100 non-functioning water service circulation pumps	2012
<ol style="list-style-type: none">1. Modify heat recovery system2. Replace interior lighting with LED lamps3. Repair leaks in vacuum sewer mains & service lines4. Replace single wall with double wall heat exchangers5. Re-level vacuum sewer utilidors6. Replace vertical bends & elbows in water loops	2013



Progress to Date

- Completed design & NTP meeting
- Obtained additional funding
- Developed phased approach
- Held pre-construction meeting in community
- Ordered materials
- Superintendent on site



A Healthy Future for Rural Alaska

